

CLAIMS

1. An apparatus for sensing electromagnetic radiation, in particular with local resolution for image-producing sensors, a detector structure constructed on a semiconductor substrate and a protective window for the detector structure being present, characterized in that a micromechanically producible optical imaging system is provided.
2. The apparatus as defined in Claim 1, characterized in that the optical imaging system has a micromechanically producible lens (5).
3. The apparatus as defined in one of the foregoing claims, characterized in that optical imaging system (5) is joined rigidly to the detector structure (3).
4. The apparatus as defined in one of the foregoing claims, characterized in that the detector structure includes multiple separate detector elements and the optical imaging system includes multiple lenses, one lens being associated with each detector element.
5. The apparatus as defined in one of the foregoing claims, characterized in that one or more lenses are provided for each group of detector elements.
6. The apparatus as defined in one of the foregoing claims, characterized in that the optical imaging system (5) forms the protective window.
7. The apparatus as defined in one of the foregoing claims, characterized in that the optical imaging system (5) is set into a protective housing (4).
8. The apparatus as defined in one of the foregoing claims, characterized in that spacers (7) are provided between the substrate (10) of the detector structure (3) and the optical imaging system (5).

9. The apparatus as defined in one of the foregoing claims, characterized in that individual detector elements are separated from one another by optical partitions.
10. The apparatus as defined in one of the foregoing claims, characterized in that the optical partitions are coated to decrease transmission.
11. The apparatus as defined in one of the foregoing claims, characterized in that the micromechanical optical imaging system (5) is constructed on a semiconductor substrate.
12. The apparatus as defined in one of the foregoing claims, characterized in that the micromechanical imaging system (5) and the substrate of the detector structure (3) are made of the same material.
13. The apparatus as defined in one of the foregoing claims, characterized in that the micromechanical imaging system and/or the substrate (10) of the detector structure (3) are made at least partially of silicon.
14. The apparatus as defined in one of the foregoing claims, characterized in that the detector structure (3) are **[sic]** applied on the back side of the substrate (10) of the optical imaging system (5).
15. The apparatus as defined in one of the foregoing claims, characterized in that a membrane (9) is configured as the support of the detector structure (3).
16. The apparatus as defined in one of the foregoing claims, characterized in that the detector structure (3) includes thermocouples.
17. A method for producing an apparatus as defined in one of the foregoing claims, characterized in that the optical imaging system (5) and the detector structure (3) are produced by joining two

wafers prior to the sectioning of individual apparatuses
(1).

18. A method for producing an apparatus as defined in one of the foregoing claims, characterized in that the optical imaging system (5) and the detector structure (3) are produced in monolithic micromechanical fashion.